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Pheir

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(54) **MULTI-COMPARTMENT ROLL-UP CONTAINER**

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(72) Inventor: **Hirshol H. Pheir**, St. Thomas, VI (US)

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(22) Filed: **Feb. 13, 2015**

(51) **Int. Cl.**

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B65D 21/02	(2006.01)
B65D 25/38	(2006.01)
B65D 41/02	(2006.01)
B65D 83/06	(2006.01)

(52) **U.S. Cl.**
CPC ***B65D 25/04*** (2013.01); ***B65D 21/0201*** (2013.01); ***B65D 25/38*** (2013.01); ***B65D 41/02*** (2013.01); ***B65D 83/06*** (2013.01)

(58) **Field of Classification Search**
CPC combination set(s) only.
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

1,190,196 A		7/1916	Schweinert et al.	
3,206,897 A	*	9/1965	Hilker	E04B 1/344 206/527
3,295,710 A	*	1/1967	Marchant	B29C 49/04 206/162
4,004,501 A	*	1/1977	Guerrero	A21C 15/02 220/23.8
4,081,101 A	*	3/1978	West	A01K 97/22 220/23.4
4,126,239 A		11/1978	Gehrig et al.	
4,320,846 A	*	3/1982	Meyering	B25H 3/023 206/390
4,799,590 A		1/1989	Furman	
4,890,741 A	*	1/1990	Edelstein	A45C 11/24 206/232
5,135,823 A	*	8/1992	Eales	B29C 49/20 215/6
5,676,253 A	*	10/1997	Hsu	B25H 3/023 206/372
5,676,274 A	*	10/1997	Green	B65D 11/00 220/23.8

(Continued)

FOREIGN PATENT DOCUMENTS

DE	102 07 763 A1	9/2003
FR	1 503 901	12/1967

(Continued)

OTHER PUBLICATIONS

PCT, International Search Report and Written Opinion Dated Sep. 30, 2015, pp. 1-11.

Primary Examiner — Jacob K Ackun
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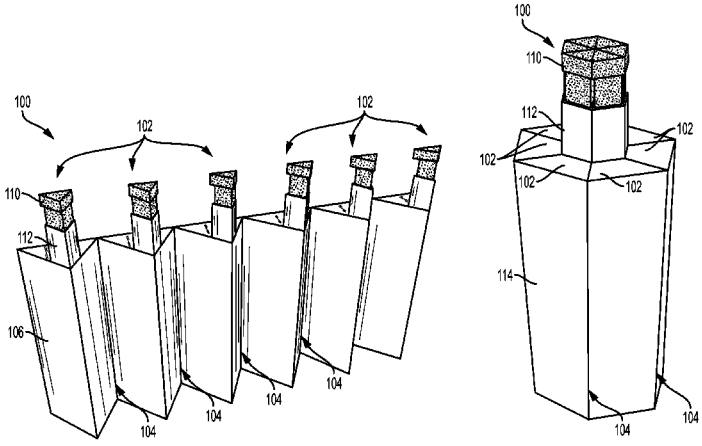
(57) **ABSTRACT**

A method provides, as part of a computer administration system, an administration interface that can operate almost any computerized device having a user interface. The computer administration system manages components of a computer system and the administration interface is operable to configure the components and to provide dynamic performance and configuration information of the components to the user as the components operate. The method provides a "commentary input" area on the administration interface while providing performance and configuration information of a specific component or a set of components. Thus, the method can receive comment(s) about the specific component(s) of the computerized system in the commentary input area. When this occurs, the method stores the comment(s) in a data store in a manner that associates the comment(s) with the specific component(s) that was being monitored. The method also automatically stores contemporaneous component data with each comment in the data store.

20 Claims, 13 Drawing Sheets



(56) **References Cited**

U.S. PATENT DOCUMENTS

5,752,464	A *	5/1998	King	A01K 5/0114 119/51.5
5,823,136	A *	10/1998	Zarski	A01K 7/00 119/51.5
D468,535	S *	1/2003	McCormack	D3/273
D570,682	S	6/2008	Erden	
7,665,634	B2 *	2/2010	Pressler	A47K 5/1202 215/390
7,810,667	B2 *	10/2010	Douglas	B65B 43/123 206/390
8,338,357	B2	12/2012	Gibis et al.	
2004/0149774	A1	8/2004	Strong	
2011/0095021	A1 *	4/2011	Clough	B65D 75/56 220/23.83
2013/0206772	A1	8/2013	Halbherr et al.	

FOREIGN PATENT DOCUMENTS

GB	2 305 162		4/1997
WO	01/44065	A1	6/2001
WO	2005/110872	A1	11/2005

* cited by examiner

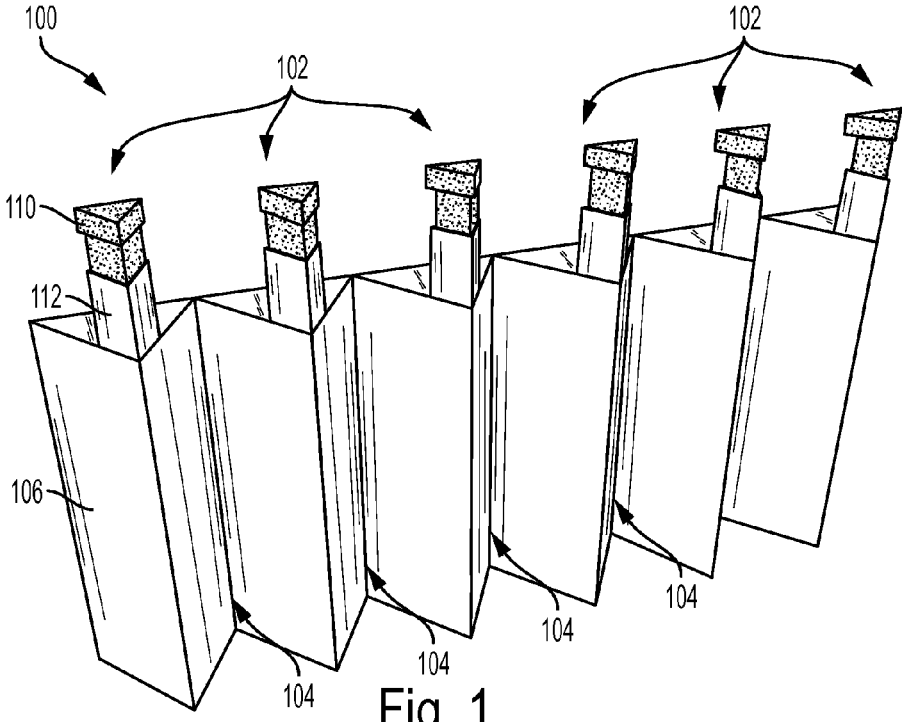

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Fig. 1

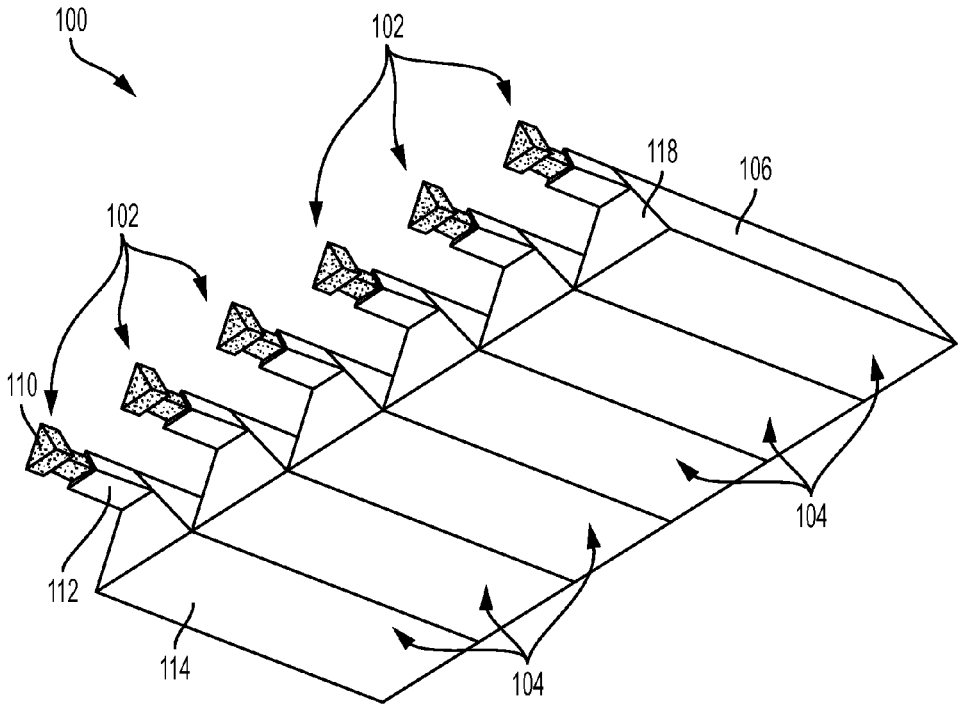
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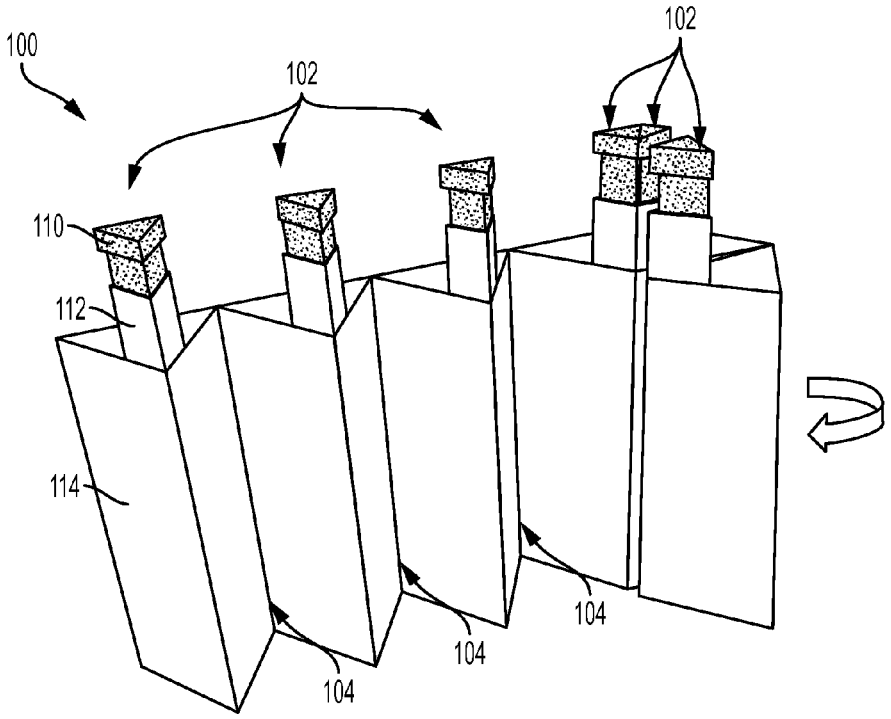
Fig. 2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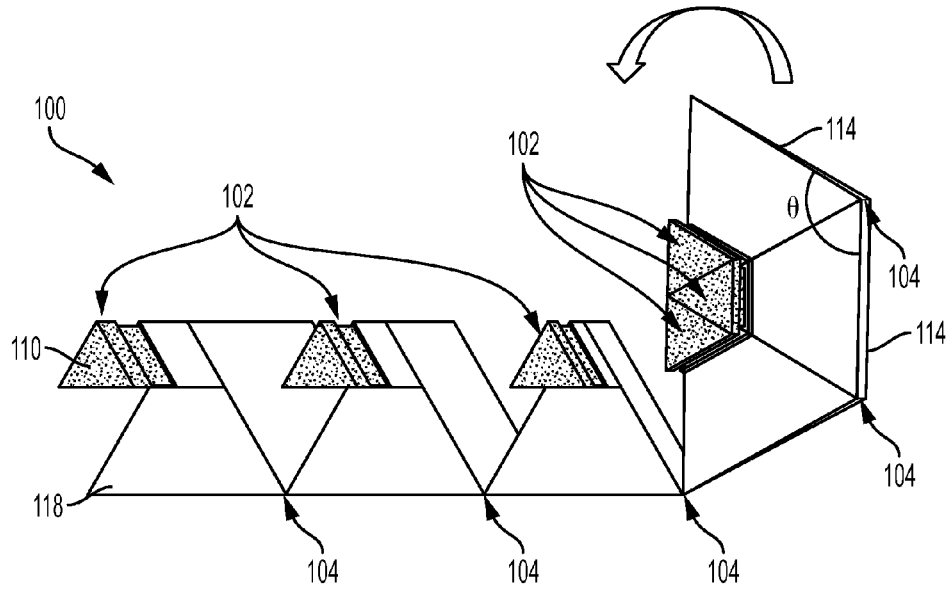
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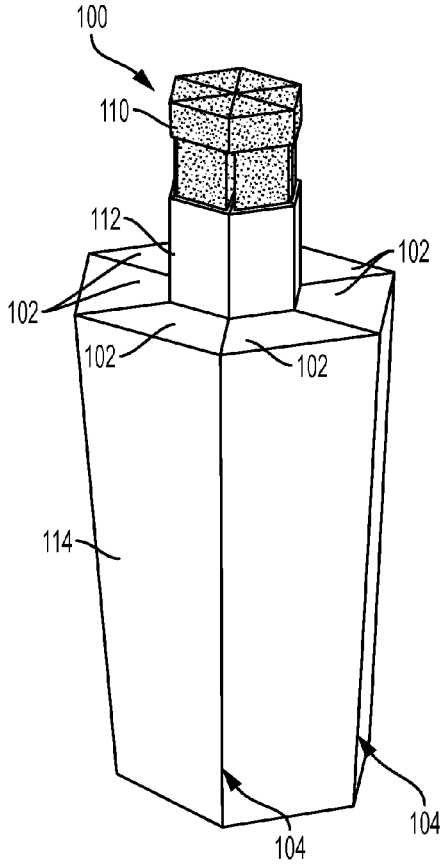
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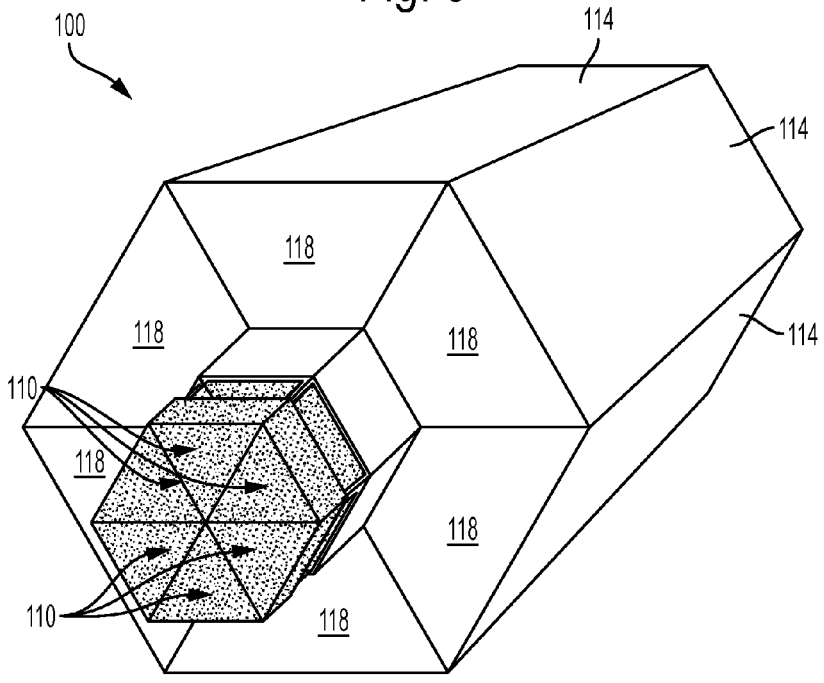
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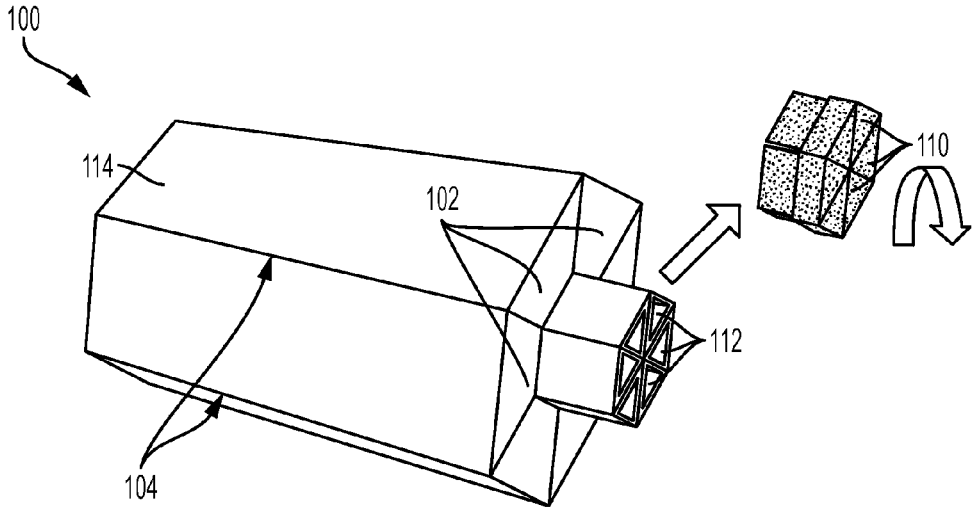
Fig. 6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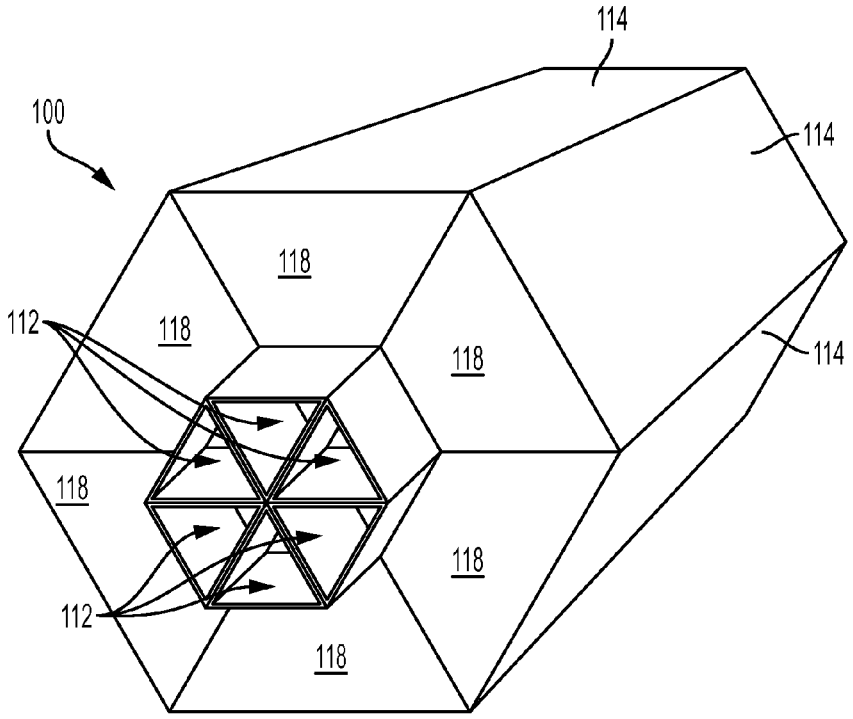
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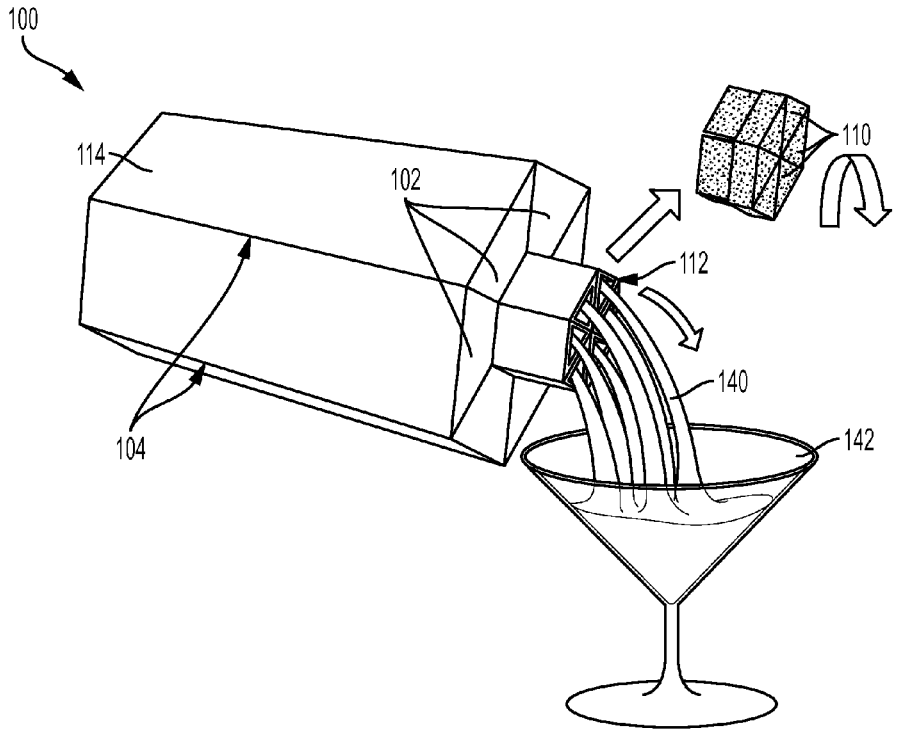
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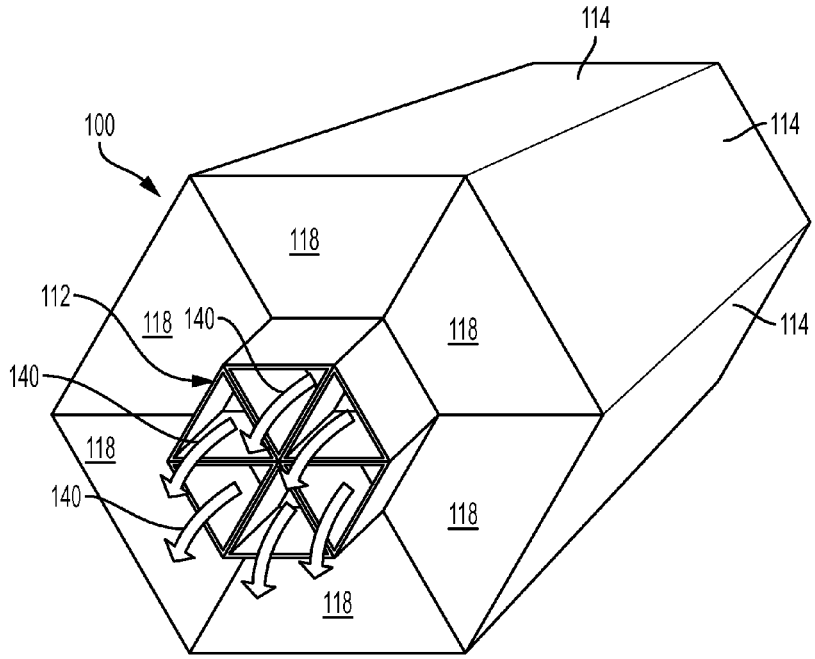
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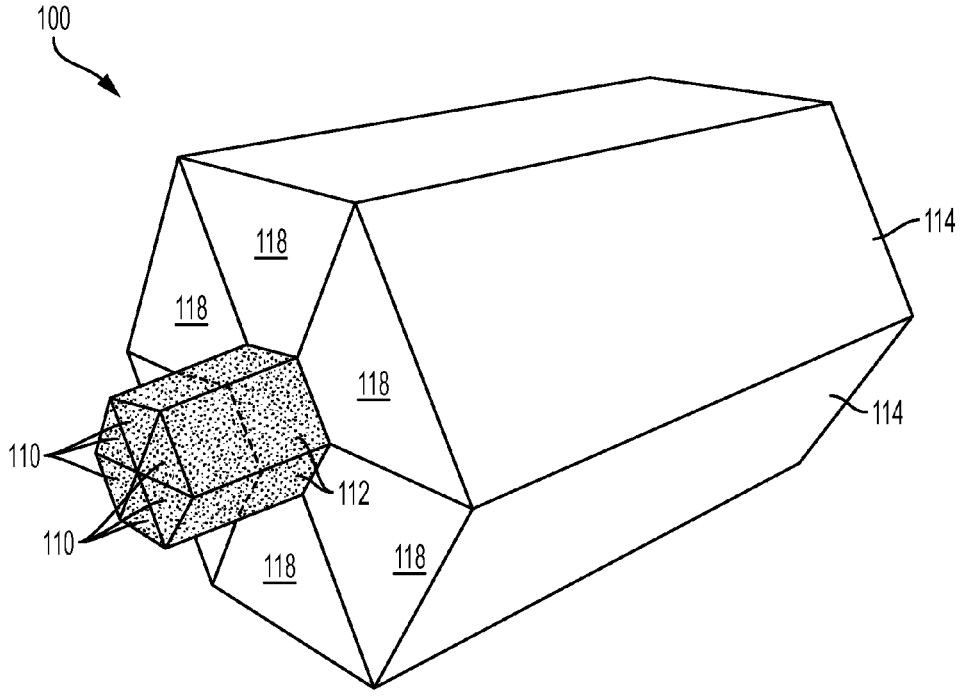
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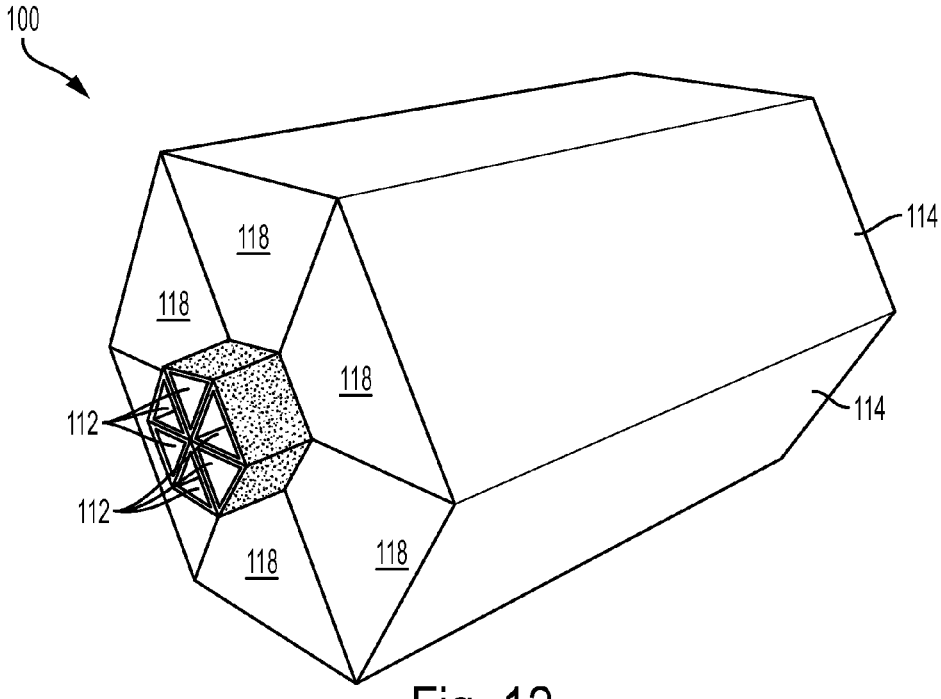
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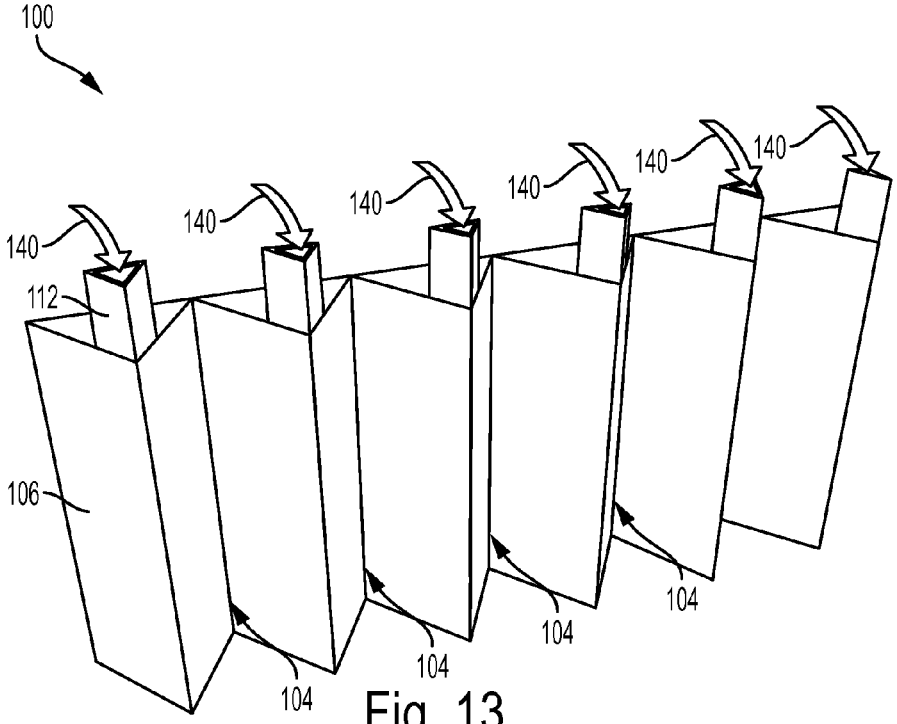
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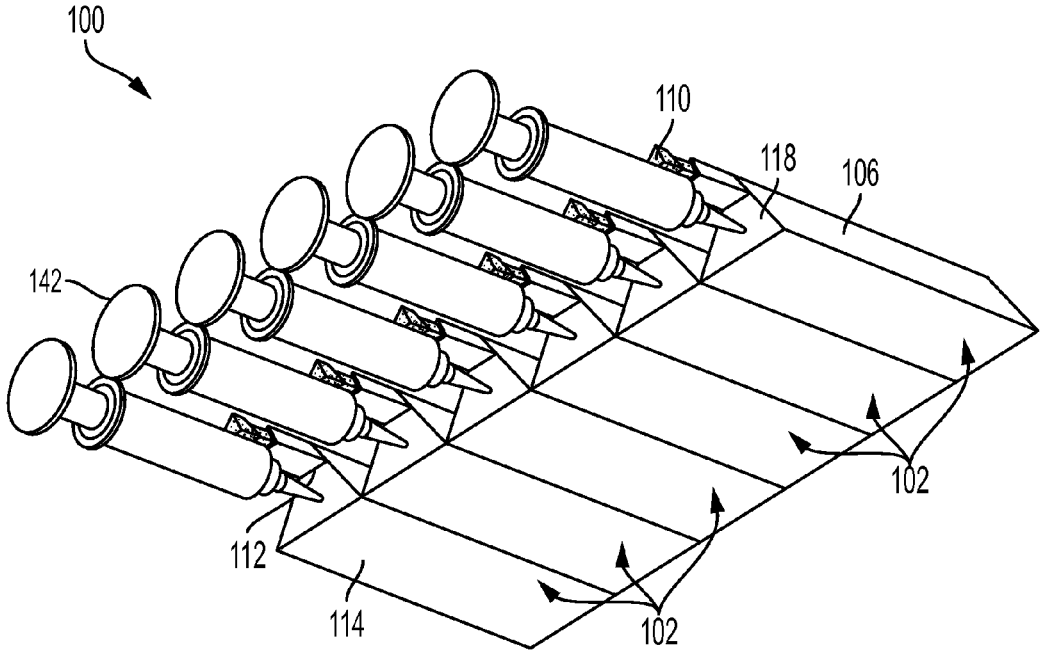
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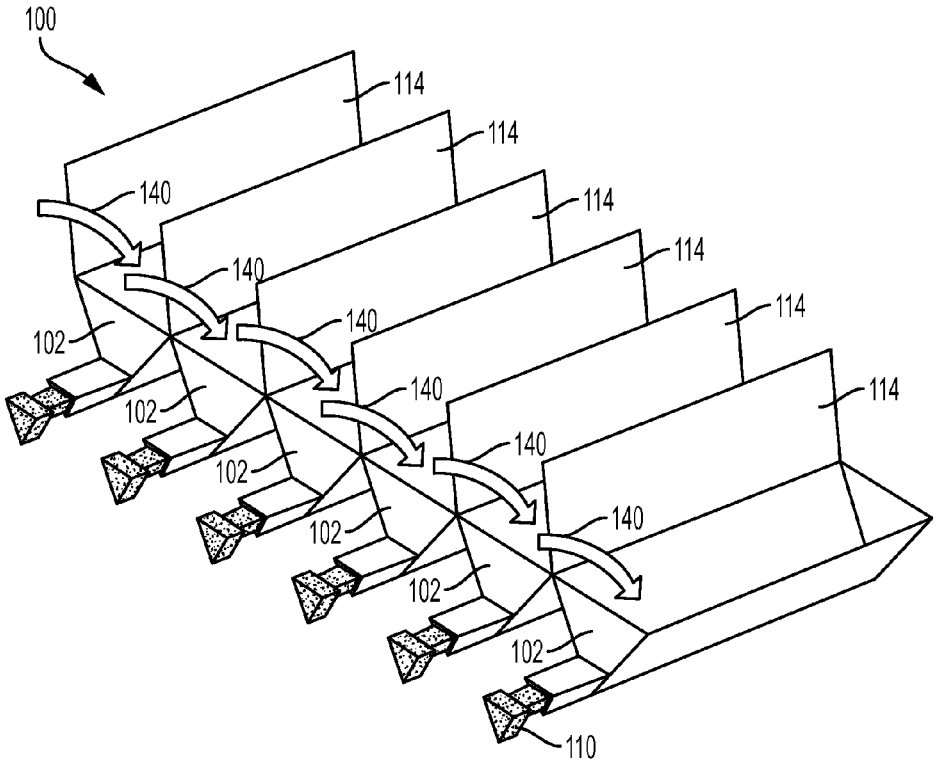
Fig. 14



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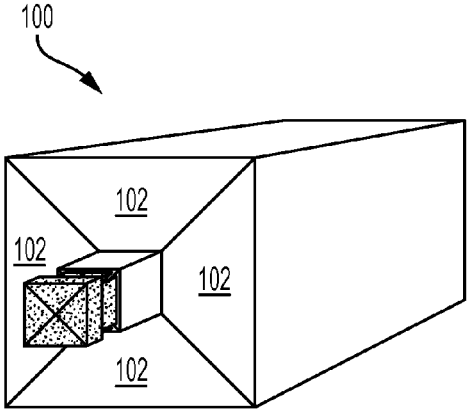

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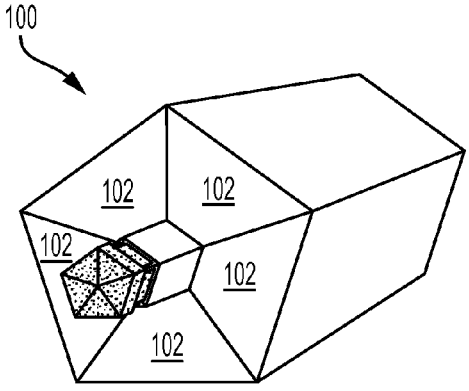

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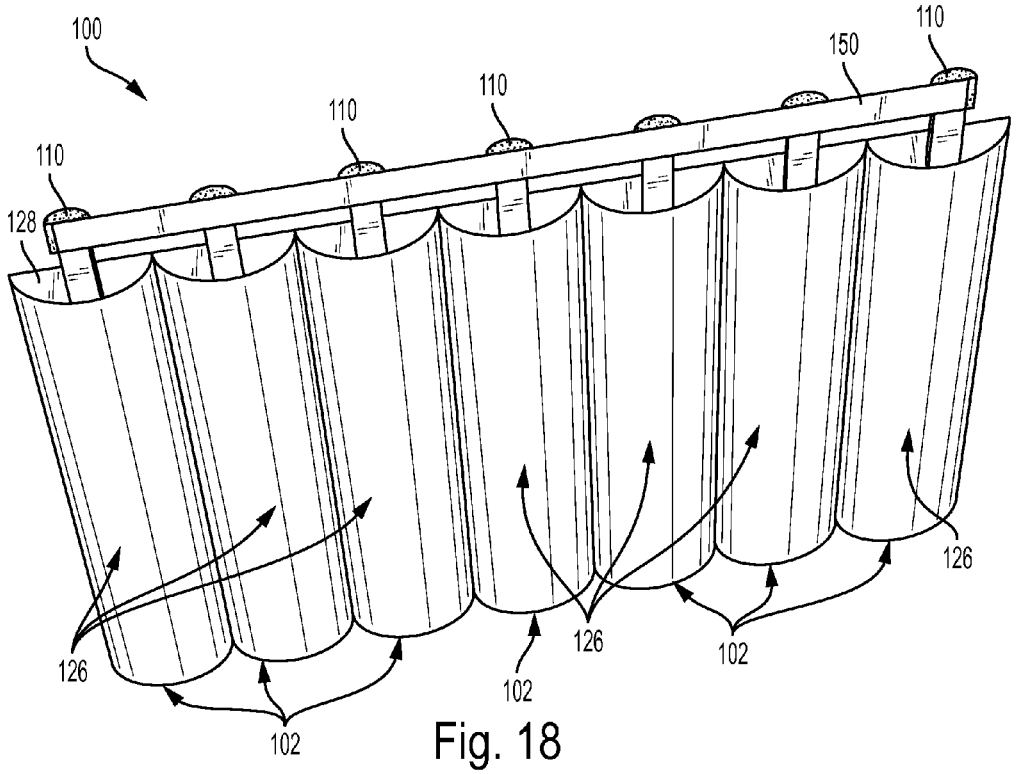
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Fig. 18

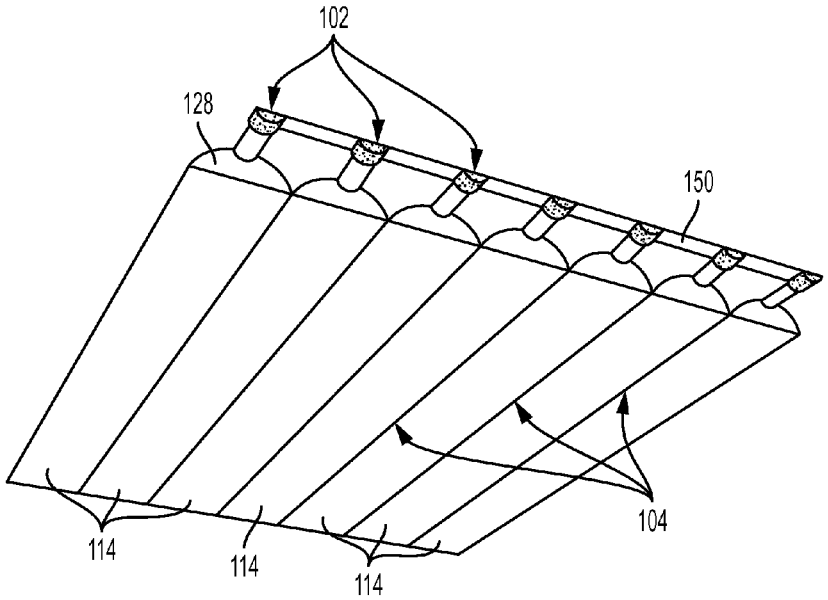
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Fig. 19

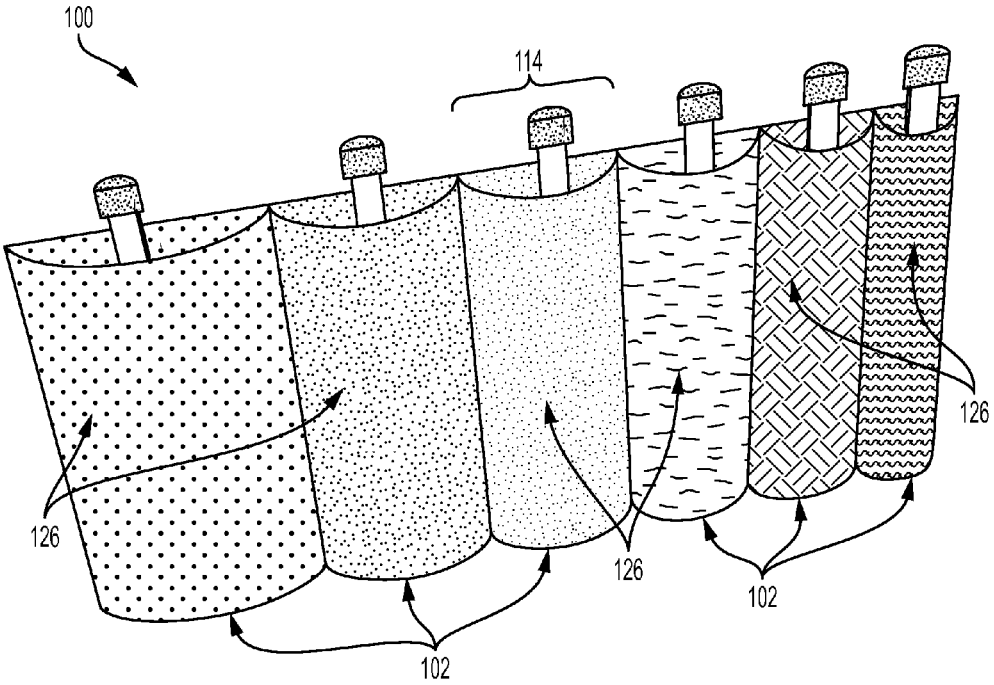
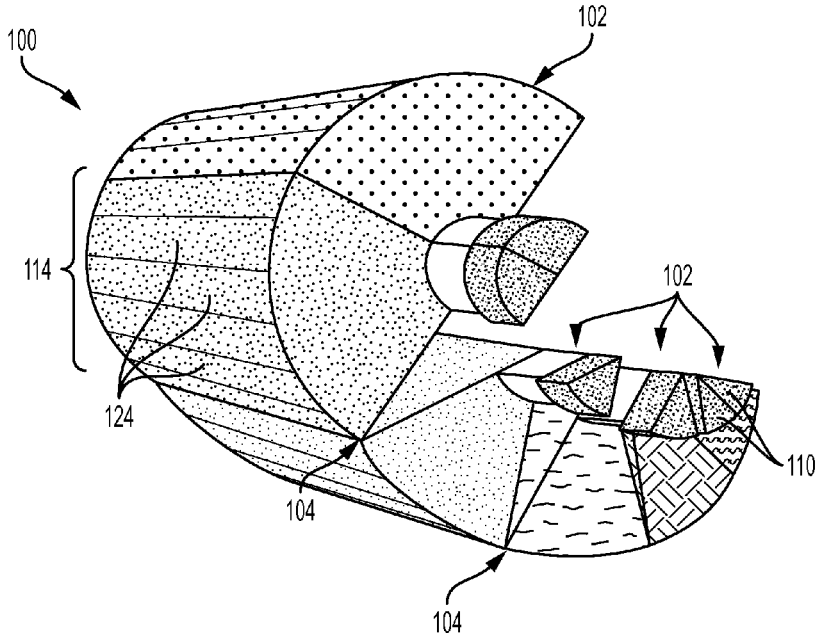


Fig. 20



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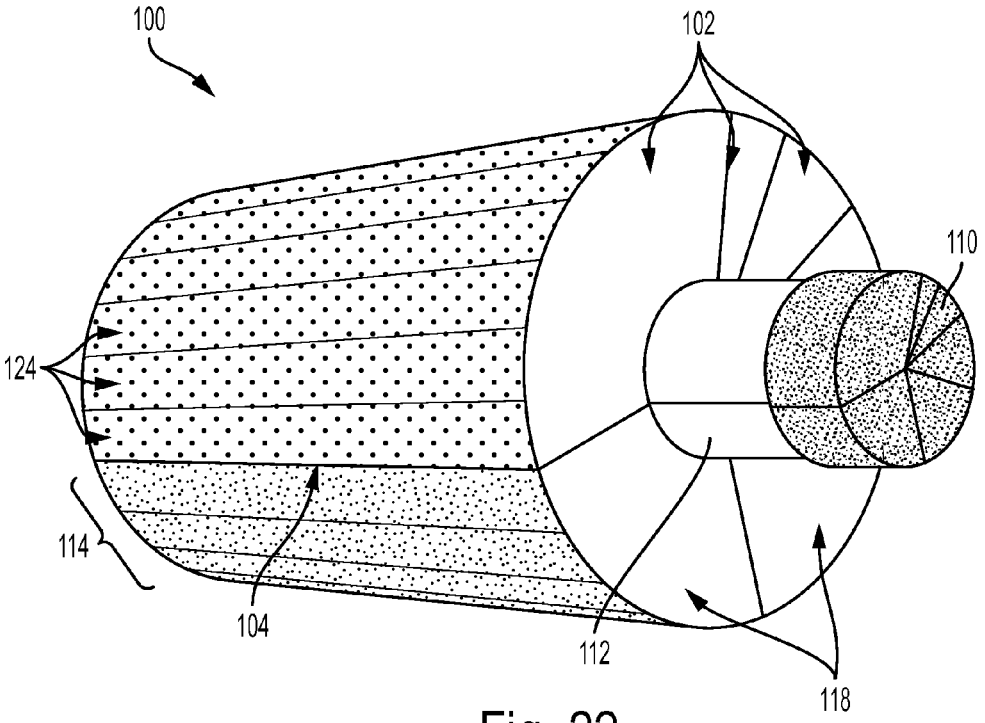
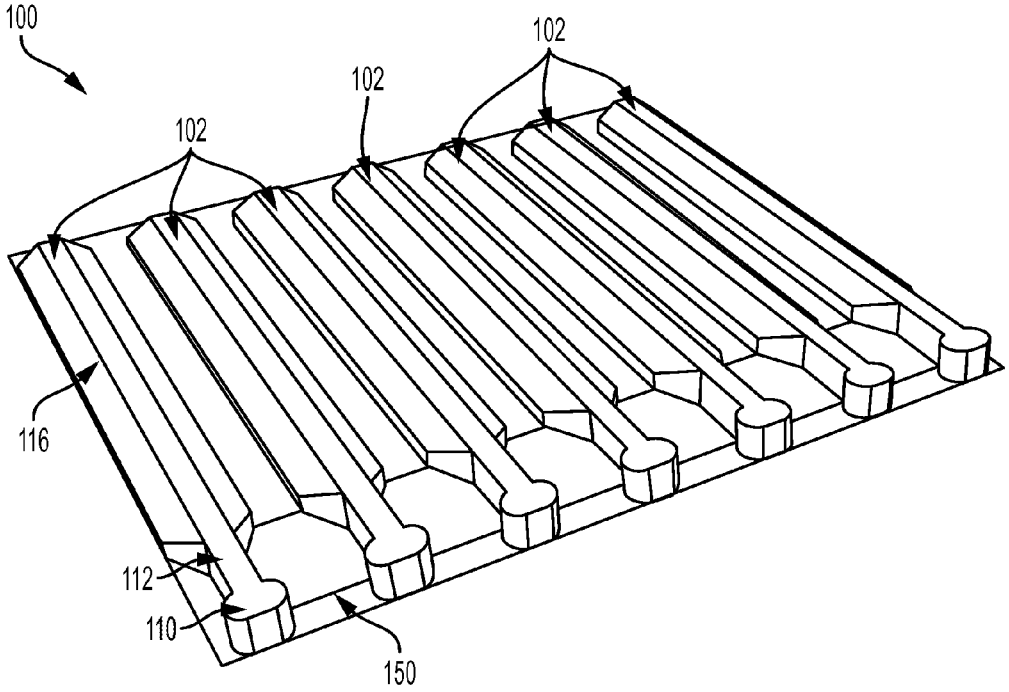


Fig. 22



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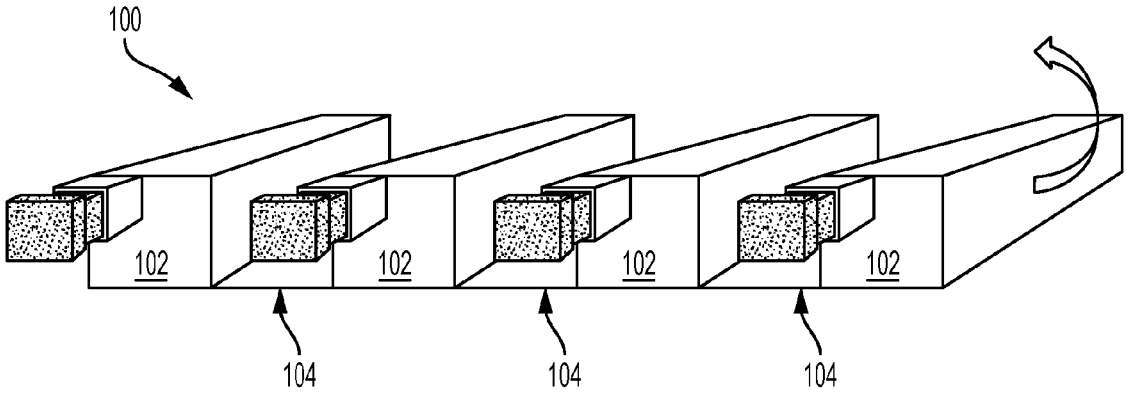

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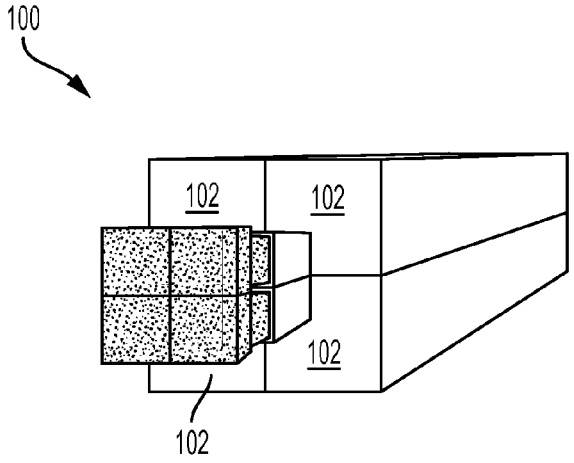

Fig. 25

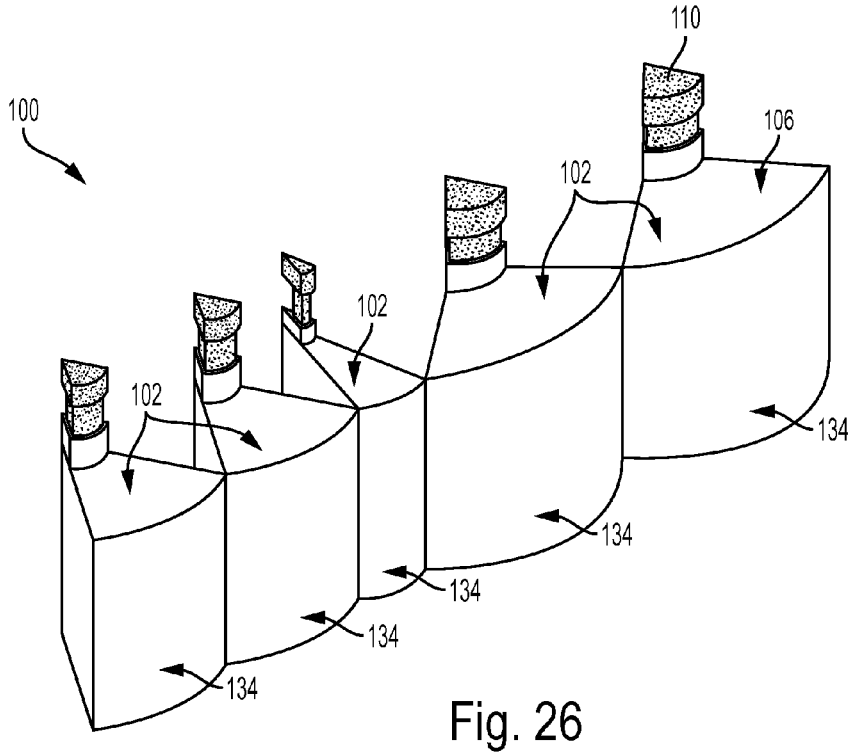

Fig. 26

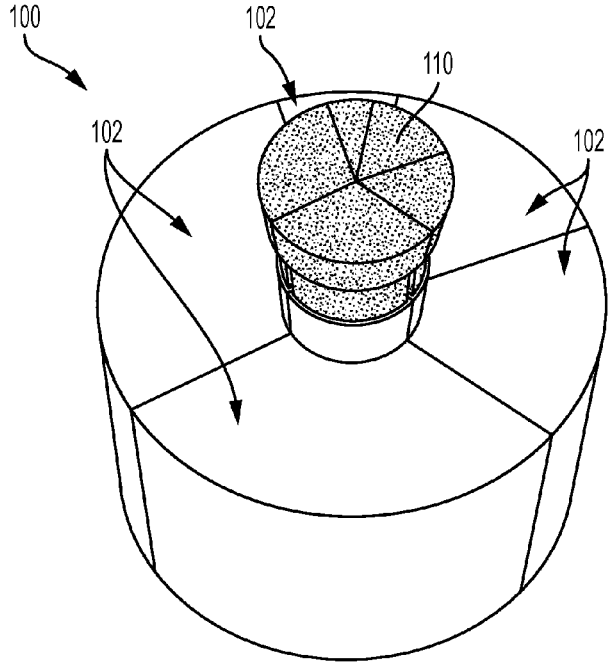

Fig. 27

MULTI-COMPARTMENT ROLL-UP CONTAINER

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is related to the following co-pending applications filed concurrently herewith by the same Applicant: Multi-Compartment Roll-Up Container-Triangle", Ser. No. 29/517,510, "Multi-Compartment Roll-Up Container-Rounded", Ser. No. 29/517,512, and "Multi-Compartment Roll-Up Container-Rounded Different Sizes", Ser. No. 29/517,514. The complete disclosures of these co-pending applications are incorporated herein by reference.

BACKGROUND

Systems and methods herein generally relate to watertight and airtight containers, and more particularly to containers that contain multiple compartments.

Ever since the first clay pots were baked in open ovens thousands of years ago, containers have taken many different forms, shapes, and sizes. Indeed, watertight and airtight containers are indispensable in modern society; however, traditional containers generally maintain a single compartment that allows all contents therein to mix. Further, while some multi-compartment containers exist, such containers keep the different compartments at fixed positions with respect to one another, which can make such containers bulky and difficult to package, transport, etc.

SUMMARY

Generally, a multi-compartment container structure disclosed herein has individual containers connected together. All the individual containers can have the same size and shape. Each of the individual containers has a flat base wall. Each of the individual containers is joined to immediately adjacent containers of the container structure by joints at wall edges of the flat base wall. The joints have a greater flexibility relative to the flat base wall. In other words, the base walls of adjacent individual containers are joined to one another by relatively more flexible joints.

The flat base wall of each individual container lies in the same plane when the multi-compartment container structure is in an unrolled state, but each flat base wall of the individual containers lies in different parallel planes when the container structure is in a rolled-up state. The combination of flat base walls of the individual containers forms a multi-planar exterior of the container structure when the container structure is in the rolled-up state. The individual containers comprise watertight and airtight caps that are positioned adjacent each other when the container structure is in the rolled-up state.

Another exemplary multi-compartment container structure herein also has individual containers connected together, and all the individual containers can have the same size and shape. In one example, the individual containers can have a triangular-shaped tubular body. The triangular-shaped tubular body has three flat walls sealed to each other and the flat walls form a triangular shape in cross-section of the tubular body. Also, triangular end walls form watertight and airtight seals at the ends of the triangular-shaped tubular body. In addition, a cap provides a removable watertight and airtight seal for fill/dispense openings of the triangular end walls.

In this structure, each of the individual containers is joined to immediately adjacent containers of the container structure by joints at wall edges of a flat base wall (which is one of the three flat walls forming the triangular-shaped tubular body). Again, the joints have a greater flexibility relative to the flat base wall. The flat base wall of each the individual containers lie in the same plane when the container structure is in the unrolled state. Each flat base wall of the individual containers lies in different parallel planes when the multi-compartment container structure is in a rolled-up state. The rolled-up state occurs when two flat base walls of adjacent ones of the individual containers fold relative to one another along one of the joints. The combination of flat base walls of the individual containers forms a multi-planar exterior of the container structure when the container structure is in the rolled-up state.

The watertight and airtight caps of the individual containers are positioned adjacent each other when the container structure is in the rolled-up state. The positions of the watertight and airtight caps of the individual containers (when the container structure is in the rolled-up state) allow all the watertight and airtight caps of the container structure to be grasped and opened simultaneously by the user. Similarly, the fill/dispense openings of the individual containers are all positioned adjacent each other when the container structure is in the rolled-up state. Thus, when in the rolled-up state, the fill/dispense openings of the container structure are positioned to cause contents (e.g., liquid material, granular dry material, etc.) of the individual containers to mix after being dispensed (e.g., to mix when the watertight and airtight caps are opened and the contents is poured out the fill/dispense openings). However, when the watertight and airtight caps are sealing the individual containers, the individual containers and the watertight and airtight caps prevent the contents maintained in different individual containers from mixing.

These and other features are described in, or are apparent from, the following detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

Various exemplary systems and methods are described in detail below, with reference to the attached drawing figures, in which:

FIG. **1** is a perspective drawing illustrating devices herein in an unrolled position;

FIG. **2** is a perspective drawing illustrating devices herein in an unrolled position;

FIG. **3** is a perspective drawing illustrating devices herein in a partially rolled-up position;

FIG. **4** is a perspective drawing illustrating devices herein in a partially rolled-up position;

FIG. **5** is a perspective drawing illustrating devices herein in a rolled-up position;

FIG. **6** is a perspective drawing illustrating devices herein in a rolled-up position;

FIG. **7** is a perspective drawing illustrating devices herein in a rolled-up position;

FIG. **8** is a perspective drawing illustrating devices herein in a rolled-up position;

FIG. **9** is a perspective drawing illustrating devices herein in a rolled-up position dispensing contents;

FIG. **10** is a perspective drawing illustrating devices herein in a rolled-up position dispensing contents;

FIG. **11** is a perspective drawing illustrating devices herein in a rolled-up position;

FIG. **12** is a perspective drawing illustrating devices herein in a rolled-up position;

FIG. **13** is a perspective drawing illustrating devices herein in an unrolled position being filled with contents;

FIG. **14** is a perspective drawing illustrating devices herein in an unrolled position being filled with contents;

FIG. **15** is a perspective drawing illustrating devices herein in an unrolled position being filled with contents;

FIG. **16** is a cross-sectional drawing illustrating devices herein in a rolled-up position;

FIG. **17** is a cross-sectional drawing illustrating devices herein in a rolled-up position;

FIG. **18** is a perspective drawing illustrating devices herein in an unrolled position;

FIG. **19** is a perspective drawing illustrating devices herein in an unrolled position;

FIG. **20** is a perspective drawing illustrating devices herein in an unrolled position;

FIG. **21** is a perspective drawing illustrating devices herein in a partially rolled position;

FIG. **22** is a perspective drawing illustrating devices herein in a rolled-up position;

FIG. **23** is a perspective drawing illustrating devices herein in an unrolled position;

FIG. **24** is a cross-sectional drawing illustrating devices herein in an unrolled position;

FIG. **25** is a cross-sectional drawing illustrating devices herein in a rolled-up position;

FIG. **26** is a perspective drawing illustrating devices herein in an unrolled position; and

FIG. **27** is a perspective drawing illustrating devices herein in a partially rolled position.

DETAILED DESCRIPTION

As shown in the accompanying drawings (discussed in detail below) various multi-compartment containers are disclosed herein. Such containers can hold individual premeasured ingredients that are kept separate until needed for use/consumption. When rolled-up, the individual containers form an overall larger container that positions all individual container fill/dispense openings in one location. Then, the caps of the rolled-up container can be 'twisted' open and the contents of the individual containers can be poured into a receptacle (glass, pitcher, blender, etc.). Thus, when the flat set of individual containers (e.g., "pouches") is rolled into a cylindrical shape, the caps (e.g., cork, stopper, perforated neck, etc.) are all in the same location and can be twisted, causing the caps to be separated from the top of the container. The contents can then be poured through the individual fill/dispense openings of the different containers into a pitcher of ice, a blender, a glass, etc., to be used or consumed.

FIG. **1** illustrates one perspective view of an exemplary multi-compartment container structure **100** herein. As shown in FIG. **1**, this exemplary multi-compartment container structure **100** has individual containers **102** connected together, and all the individual containers **102** can have the same size and shape. In one example, the individual containers **102** can have a triangular-shaped tubular body **106**. Other examples of differently shaped containers are discussed below.

The initial example presented in this disclosure has a triangular-shaped tubular body **106** that has three flat walls sealed to each other, and the three flat walls thereby form a triangular shape in a cross-section of the tubular body **106**. See FIGS. **2**, **4**, **6**, **8**, etc., that illustrate how the triangular-shaped tubular body **106** has a triangular shape in cross-section. Also, as shown for example in FIGS. **2**, **4**, **6**, **8**, etc., triangular end walls **118** seal the ends of the triangular-shaped tubular body **106**.

In addition, a removable watertight and airtight cap **110** seals fill/dispense openings **112** of the triangular end walls **118**. The openings **112** can be in the form of a neck or spout that are sealed with a screw-on cover, cork-type or stopper-type plug device, etc., **110**, as shown in FIG. **1**. Alternatively, item **112** can be fill/dispense openings or holes in the end walls **118** that will be opened when the caps or plugs/corks **110** are removed from the end walls **118**, as shown in FIG. **2**. Note that in FIG. **2**, there is no neck and the cap **110** forms the entire protrusion from the end wall **118**, and when the protrusion/cap **110** is removed from the end wall **118**, an opening **112** will remain in the end wall **118**.

In this structure, each of the individual containers **102** is joined to immediately adjacent containers of the container structure by joints **104** at wall edges of a flat base wall **114** (of the three flat walls). The joints **104** have a greater flexibility relative to the flat base wall **114** (either by being thinner or by being made of a different material) thereby allowing adjacent flat base walls **114** to fold relative to one another around a corresponding joint **104**.

As shown in FIG. **2**, the flat base wall **114** of each the individual containers **102** lies in the same plane when the container structure is in the unrolled state. However, as shown in FIG. **5-6**, each flat base wall **114** of the individual containers **102** lies in different parallel planes when the multi-compartment container structure is in a rolled-up state. The rolled-up state occurs when two flat base walls **114** of adjacent ones of the individual containers **102** fold relative to one another along one of the wall edges **104** (as shown in perspective view in FIG. **3** and in top-view in FIG. **4** which shows the container structure **100** in the partially rolled-up state, where the rolling action is shown by block arrows). As shown in FIG. **4**, two adjacent flat base walls **114** are folded relative to one another when the planes of the two adjacent flat base walls **114** are at a non-zero angle (**0**) with respect to each other (and such an angle is formed at the wall edge **104**). As shown for example in FIG. **5-6**, the combination of flat base walls **114** of the individual containers **102** forms a multi-planar exterior of the container structure when the container structure is in the rolled-up state, as shown in FIGS. **5** and **6**.

As shown in FIGS. **5** and **6**, the watertight and airtight caps **110** of the individual containers **102** are positioned adjacent each other when the container structure is in the rolled-up state. The positions of the watertight and airtight caps **110** of the individual containers **102** (when the container structure is in the rolled-up state) allow all the watertight and airtight caps **110** of the container structure to be grasped and opened (e.g., removed, twisted-off, torn-off, pulled-out, unscrewed, etc.) simultaneously, as shown by the block arrow in FIG. **7**. FIG. **8** also shows that the fill/dispense openings **112** of the individual containers **102** are all positioned adjacent each other when the container structure is in the rolled-up state after the caps **110** are removed.

When the watertight and airtight caps **110** are sealing the individual containers **102** (e.g., as shown in FIGS. **1-6**) the individual containers **102** and the watertight and airtight caps **110** prevent the contents maintained in different individual containers **102** from mixing (and/or being dispensed).

In one example, the watertight and airtight caps **110** are sized and positioned (when in the container structure **100** is in the rolled-up state) to be easily grasped simultaneously by a human user's hand or fingers, allowing the user to simultaneously twist, pull, tear, etc., all the watertight and airtight caps **110** of a given container structure **100** in a single motion, so as to simultaneously remove all watertight and airtight caps **110** from all individual containers **102** of the given container structure **100** (and this is illustrated by the block arrows in FIG. **7**). This process is aided by the triangular shape of the caps **110** in this example, which fit against one another when the container structure **100** is in the rolled-up state (as shown, for example, in FIG. **6**); and the combination

of such triangular-shaped caps **110** (when positioned in the rolled-up state) forms an overall hexagonal-shaped cap structure, in this example.

Thus, as shown in the drawings, the user can grab or pinch the overall hexagonal-shaped cap structure (created by the combination of the individual triangular-shaped caps **110** in the rolled-up structure) using their fingers or the palm on their hand, allowing the user to simultaneously grasp all caps **110** and simultaneously remove all caps **110** from the rolled-up structure **100** in one twisting, pulling, cutting, and/or tearing user motion.

Thus, as shown in FIGS. **9** and **10**, when in the rolled-up state, the fill/dispense openings **112** of the container structure are positioned to cause contents **140** (e.g., liquid material, granular or powdered dry material, etc.) of the individual containers **102** to be dispensed and to mix when the watertight and airtight caps **110** are opened and the contents **140** is poured out the fill/dispense openings **112** and into a container **142**, such as a drinking glass. More specifically, FIG. **10** illustrates many block arrows (identified by reference number **140**) and this illustrates that different materials **140** are simultaneously dispensed from different openings **112**, and that the different materials **140** combine (e.g., mix together) as they are being dispensed from the different openings **112**. This is also shown in FIG. **9** where the dispensed material **140** is shown as mixing into a single stream as it enters the container **142**. In other words, the dispensed material **140** begins as individual streams as it exits each different opening **112**; however, these individual streams at least partially combine as they are poured together and as they enter the container **142**. The user can perform additional mixing of the different materials after the dispensed material **140** has been poured into the container **142**.

Note, that in FIG. **10**, the individual openings **112** are only identified using a single identification number (**112**) to avoid clutter in the drawings; however, FIG. **8** uses individual identification numerals for each individual fill/dispense opening, and the structure in FIGS. **8** and **10** is the same, except that in FIG. **10** the material **140** is shown as being dispensed. Also, FIGS. **9** and **10** illustrate that the rolled-up container structure **100** is tilted by the user (so that the end having the fill/dispense openings **112** is lower (relative to the surface of the earth) than the opposite end of the container structure **100**) to allow the earth's gravitational force to cause the material contents **142** to exit the fill/dispense openings **112**.

FIGS. **11** and **12** provide a different view of the structure, which more clearly illustrates an optional perforation feature between the caps **110** and the fill/dispense openings **112**. More specifically, in FIG. **11**, the perforations (shown as dashed lines) can be more easily seen between the caps **110** and the fill/dispense openings **112**. Such perforations do not disturb the watertight/airtight seals of the individual containers **102**, but merely make tearing/removing the caps **110** from the openings **112** easier for the user by weakening the material in the area of the perforations (through scoring, forming incomplete holes that do not pass fully through the material, etc.). In FIG. **12**, the fill/dispensed caps **110** have been removed (as discussed above) allowing the fill/dispense openings **112** to be available to simultaneously dispense/mix the contents of the different individual containers **102**.

In the previous portions of this disclosure, the openings **112** have been described as fill/dispense openings, meaning that the openings **112** can be used to fill the individual containers **102** with different materials **140**, and/or can be used for dispensing the contents **140** from the individual containers **102**. In furtherance of this concept, FIGS. **13-15** shows some exemplary ways in which the individual containers **102** can be filled with the different materials **140**. For example, as shown in FIG. **13**, the caps **110** are not in place, allowing the contents **140** to be placed, poured, pumped, injected, etc., into the individual containers **102** through the fill/dispense openings **112** (after which the caps **110** are positioned to seal the openings **112**).

Alternatively, as shown in FIG. **14**, various different injection processes (represented by symbolic injection devices **142**) can be utilized to inject different materials into the different individual containers. For example, the container structure **100** can be made of a somewhat flexible material that can be self-sealing if a small enough injection hole is utilized to inject the material. Alternatively, the injection process can be combined with a heating process that re-melts the material of the container structure **100**, thereby sealing any injection holes as they are made. Additionally, those ordinarily skilled in the art we understand that many other types of self-sealing injection methodologies can be utilized with the structures disclosed.

In an alternative structure that aids in the filling of the individual containers **102**, FIG. **15** illustrates that the flat base wall **114** can comprise a flap that can be open to allow the different materials **140** to be inserted, placed, poured, pumped, injected, etc., into the individual containers **102**. After the material **140** is inserted into the individual containers, the flat base wall **114** is sealed to the other walls (to create the structure shown in FIG. **2**, for example) to again create the watertight and airtight sealed individual containers **102** that are described above.

While a few exemplary methodologies and structures for filling the individual containers **102** are described above, those ordinarily skilled in the art would understand that many other methodologies could be utilized to fill the individual containers with different materials **140**. Further, these materials **140** can be any form of materials, liquids, solids, crystalline materials, powdered materials, liquids containing solids, pressurize materials, carbonated materials, etc.

Additionally, while the foregoing examples have presented individual containers **102** that have a triangular-shaped tubular body **106**, and that when rolled-up form a hexagonal-shaped structure, those ordinarily skilled in the art would understand that many other shapes could be utilized. Also, the previous examples form a hexagonal-shaped structure when in the rolled-up state because six individual containers are included within the example shown above. However, the number of sides the rolled-up container will contain is only dependent upon the number of individual containers **102** that are connected by the joints **104**. Therefore, if there are four individual containers **102**, the resulting rolled-up container structure will have four sides (as shown in cross-sectional view in FIG. **16**); similarly, if there are five individual containers **102**, the resulting rolled-up container structure will have five sides (as shown in cross-sectional view in FIG. **17**).

Further, the number and/or cross-sectional size of individual containers **102** that are included within a single container structure **100** may be subject to the usage of the container. If, for example, a user-consumable drink that contains three distinct substances (e.g., water in one individual container, powered flavoring in one individual container, and sugar in one individual container) may only include three individual containers (if each container has sufficient volume to hold a prescribed quantity of material), which would result in a triangular-shaped container when rolled-up. Some of the individual containers can contain the same material, depending upon quantity requirements. Thus, those skilled in the art would understand that the rolled-up container structure herein can contain as many sides as there are individual con-

tainers and can be triangular, square, pentagonal, hexagonal, etc., and the number of individual containers may depend upon what the container structure **100** maintains. Therefore, containers having a triangular-shaped tubular body **106** and a rolled-up container having a hexagonal shape are only examples, and the disclosed structure is intended to include all shaped individual and rolled-up structures.

Further, so long as each of individual containers **102** include a flat face wall **114**, and the joints **104** between the individual containers **100** allow the container structure **100** to be rolled-up, the remaining structure of the individual containers **102** can take almost any shape. Therefore, for example, as shown in FIGS. **18** and **19**, the remaining structure of individual containers **126** can have a curved shape, and this curve shaped portion **126** in FIGS. **18** and **19** can be flexible (e.g., as a bag, pouch, or pouch-like structure and becomes curved as it is filled with contents) or the curve shaped portion **126** can be non-flexible and remain curved in all situations (whether full or empty).

In FIG. **20**, the pouch-like structures **126** are shown to have different sizes. Additionally, each flat face wall **114** can comprise many different flat sections **124** that run from end wall **118** to end wall **118**. The flat sections **124** of each flat face wall **114** can be more easily seen in FIG. **21**, which illustrates the structure shown in FIG. **20** in partially rolled-up form. FIG. **22** illustrates the same structure shown in FIGS. **20** and **21** in fully rolled-up form.

As can be seen in FIGS. **20-22**, the 'rigid' outer shell **114** (i.e. the exterior **114** when rolled-up) can be strips of rigid material **124**. Also, as shown, there can be many strips **124** of rigid material for each of the inner softer/malleable pouches/bags **126**, such that each relatively more flexible pouch/bag **124** spans multiple lengths of the rigid strips **124**. When the container is flat or unrolled, it sits flat because the inner pouches/bags **124** are flexible and soft, and the inner pouches/bags **124** spread evenly over the rigid strips **124**. However, when rolled, because of the rigid outer shell **114**/**124**, the container forms the shape of a cylinder (FIG. **22**), and the inner softer pouches/bags **124** change shape to fill the interior of the cylinder.

FIG. **23** illustrates that the individual containers **102** can be different than triangular or pouch-shaped structures in cross-section, and in FIG. **23** the bodies **116** are six-sided bodies in cross-section (were a five-sided body **116** is connected to the flat face wall **114**). Similarly, in FIGS. **24** and **25** (where the container structure **100** is shown unrolled in FIG. **24** and rolled-up in FIG. **25**) the individual containers can have a rectangular shape in cross-section. Note that with the rectangular-shaped individual containers **102** (in FIGS. **24** and **25**) the joints **104** can be longer (larger) than the joints **104** used for triangular-shaped individual containers **102** shown in FIG. **1**.

FIGS. **26** and **27** illustrate an unrolled (FIG. **26**) and rolled-up (FIG. **27**) container structure **100**, where the individual containers **102** include curved outer face walls **134** (in place of the flat face walls **114**) that can be flexible or rigid; and these illustrated structures **100** otherwise maintain all the features discussed above with respect to the triangular structures shown in FIGS. **1-15**.

An additional feature shown in FIGS. **18**, **19**, and **23** is a strip or band **150** that connects all of the caps **110** together. This strip or band **150** helps ensure that all the caps **110** will be positioned in the same location when the structure is rolled-up, and helps ensure that all the caps are simultaneously removed when the user twists the caps **110** off the rolled-up container structure **100**.

All structures described herein can be made of any material capable of forming a watertight or airtight container, and such structures can be formed using any manufacturing process, whether currently known or developed in the future. For example, the container structures described herein can be formed of plastics, glasses, metals, alloys, rubbers, etc., or any combinations of such materials; and the structures herein can be fully (or have sections that are) transparent, translucent, non-transparent, etc. The container structures herein can be made using any manufacturing technique including, but not limited to injection molding, extrusion molding, stamping, patterning, lithography, material patterning/cutting/shaping/grinding, component assembly, etc. Further, some portions of the containers mentioned herein can be made of different materials than other portions of the containers or the entire container structure can be made of a single uniform material, depending upon the use of the container structure. Additional, the containers herein can be one-time-use containers, or can be reusable.

Therefore, the material makeup, appearance, size, shapes, etc., of the structures described herein can vary for different uses, so long as the flat base walls can be folded along the joints to allow the structure to be rolled-up from a flat state to a rolled-up state, where all the caps and openings are positioned adjacent one another when the structure is in the rolled-up state.

While some exemplary structures are illustrated in the attached drawings, those ordinarily skilled in the art would understand that the drawings are simplified schematic illustrations and that the claims presented below encompass many more features that are not illustrated (or potentially many less) but that are commonly utilized with such devices and systems. Therefore, Applicants do not intend for the claims presented below to be limited by the attached drawings, but instead the attached drawings are merely provided to illustrate a few ways in which the claimed features can be implemented.

In addition, terms such as "right", "left", "vertical", "horizontal", "top", "bottom", "upper", "lower", "under", "below", "underlying", "over", "overlying", "parallel", "perpendicular", etc., used herein are understood to be relative locations as they are oriented and illustrated in the drawings (unless otherwise indicated). Terms such as "touching", "on", "in direct contact", "abutting", "directly adjacent to", etc., mean that at least one element physically contacts another element (without other elements separating the described elements). Further, the terms automated or automatically mean that once a process is started (by a machine or a user), one or more machines perform the process without further input from any user.

It will be appreciated that the above-disclosed and other features and functions, or alternatives thereof, may be desirably combined into many other different systems or applications. Various presently unforeseen or unanticipated alternatives, modifications, variations, or improvements therein may be subsequently made by those skilled in the art which are also intended to be encompassed by the following claims. Unless specifically defined in a specific claim itself, steps or components of the systems and methods herein cannot be implied or imported from any above example as limitations to any particular order, number, position, size, shape, angle, color, or material.

What is claimed is:

1. A multi-compartment container structure comprising:

individual containers connected together,

all said individual containers having the same size and shape and comprising:

a triangular-shaped tubular body comprising three flat walls sealed to each other and forming a triangular shape in cross-section;

triangular end walls sealed to ends of said triangular-shaped tubular body; and

a removable watertight and airtight cap connected to one of said triangular end walls,

each of said individual containers being joined to immediately adjacent containers of said container structure by joints at wall edges of a flat base wall of said three flat walls,

said joints having a greater flexibility relative to said flat base wall,

said flat base wall of each said individual containers lying in a same plane when said container structure is in an unrolled state,

each said flat base wall of said individual containers lying in different parallel planes when said multi-compartment container structure is in a rolled-up state,

said rolled-up state occurring when two flat base walls of adjacent ones of said individual containers fold relative to one another along one of said wall edges,

a combination of flat base walls of said individual containers forming a multi-planar exterior of said container structure when said container structure is in said rolled-up state, and

said watertight and airtight caps of said individual containers being positioned adjacent each other when said container structure is in said rolled-up state.

2. The multi-compartment container structure according to claim **1**, positions of said watertight and airtight caps of said individual containers when said container structure is in said rolled-up state allowing all said watertight and airtight caps of said container structure to be grasped and opened simultaneously.

3. The multi-compartment container structure according to claim **1**, said individual containers comprising fill/dispense openings sealed by said watertight and airtight caps.

4. The multi-compartment container structure according to claim **1**, said individual containers comprising fill/dispense openings positioned adjacent each other when said container structure is in said rolled-up state, said fill/dispense openings being sealed by said watertight and airtight caps.

5. The multi-compartment container structure according to claim **1**, said individual containers comprising fill/dispense openings positioned adjacent each other,

said fill/dispense openings being sealed by said watertight and airtight caps, and

said fill/dispense openings being positioned to cause contents of said individual containers to mix when said container structure is in said rolled-up state and when said watertight and airtight caps are opened and said contents is poured out said fill/dispense openings.

6. The multi-compartment container structure according to claim **1**, each of said individual containers maintaining contents when said watertight and airtight cap are sealing said individual containers, and said individual containers and said watertight and airtight caps preventing said contents maintained in different individual containers from mixing when said watertight and airtight caps are sealing said individual containers.

7. The multi-compartment container structure according to claim **1**, each of said individual containers maintaining a liquid material or a granular dry material when said watertight and airtight cap are sealing said individual containers.

8. A multi-compartment container structure comprising:

individual containers connected together,

all said individual containers having the same size and shape and comprising:

a tubular body comprising at least one flat wall;

end walls sealed to ends of said tubular body; and

a removable watertight and airtight cap connected to one of said end walls,

each of said individual containers being joined to immediately adjacent containers of said container structure by joints at wall edges of a flat base wall of said at least one flat wall,

said joints having a greater flexibility relative to said flat base wall,

said flat base wall of each said individual containers lying in a same plane when said container structure is in an unrolled state,

each said flat base wall of said individual containers lying in different parallel planes when said multi-compartment container structure is in a rolled-up state,

said rolled-up state occurring when two flat base walls of adjacent ones of said individual containers fold relative to one another along one of said wall edges,

a combination of flat base walls of said individual containers forming a multi-planar exterior of said container structure when said container structure is in said rolled-up state, and

said watertight and airtight caps of said individual containers being positioned adjacent each other when said container structure is in said rolled-up state.

9. The multi-compartment container structure according to claim **8**, positions of said watertight and airtight caps of said individual containers when said container structure is in said rolled-up state allowing all said watertight and airtight caps of said container structure to be grasped and opened simultaneously.

10. The multi-compartment container structure according to claim **8**, said individual containers comprising fill/dispense openings sealed by said watertight and airtight caps.

11. The multi-compartment container structure according to claim **8**, said individual containers comprising fill/dispense openings positioned adjacent each other when said container structure is in said rolled-up state, said fill/dispense openings being sealed by said watertight and airtight caps.

12. The multi-compartment container structure according to claim **8**, said individual containers comprising fill/dispense openings positioned adjacent each other,

said fill/dispense openings being sealed by said watertight and airtight caps, and

said fill/dispense openings being positioned to cause contents of said individual containers to mix when said container structure is in said rolled-up state and when said watertight and airtight caps are opened and said contents is poured out said fill/dispense openings.

13. The multi-compartment container structure according to claim **8**, each of said individual containers maintaining contents when said watertight and airtight cap are sealing said individual containers, and said individual containers and said watertight and airtight caps preventing said contents maintained in different individual containers from mixing when said watertight and airtight caps are sealing said individual containers.

14. The multi-compartment container structure according to claim **8**, each of said individual containers maintaining a liquid material or a granular dry material when said watertight and airtight cap are sealing said individual containers.

15. A multi-compartment container structure comprising:
individual containers connected together,
each of said individual containers having a flat base wall,
each of said individual containers being joined to immediately adjacent containers of said container structure by joints at wall edges of said flat base wall,
said joints having a greater flexibility relative to said flat base wall,
said flat base wall of each of said individual containers lying in a same plane when said multi-compartment container structure is in an unrolled state,
each said flat base wall of said individual containers lying in different parallel planes when said container structure is in a rolled-up state,
a combination of flat base walls of said individual containers forming a multi-planar exterior of said container structure when said container structure is in said rolled-up state,
said individual containers comprising watertight and airtight caps,
said watertight and airtight caps of said individual containers being positioned adjacent each other when said container structure is in said rolled-up state.

16. The multi-compartment container structure according to claim 15, positions of said watertight and airtight caps of said individual containers when said container structure is in said rolled-up state allowing all said watertight and airtight caps of said container structure to be grasped and opened simultaneously.

17. The multi-compartment container structure according to claim 15, said individual containers comprising fill/dispense openings sealed by said watertight and airtight caps.

18. The multi-compartment container structure according to claim 15, said individual containers comprising fill/dispense openings positioned adjacent each other when said container structure is in said rolled-up state, said fill/dispense openings being sealed by said watertight and airtight caps.

19. The multi-compartment container structure according to claim 15, said individual containers comprising fill/dispense openings positioned adjacent each other,
said fill/dispense openings being sealed by said watertight and airtight caps, and
said fill/dispense openings being positioned to cause contents of said individual containers to mix when said container structure is in said rolled-up state and when said watertight and airtight caps are opened and said contents is poured out said fill/dispense openings.

20. The multi-compartment container structure according to claim 15, each of said individual containers maintaining a contents when said watertight and airtight cap are sealing said individual containers, and said individual containers and said watertight and airtight caps preventing said contents maintained in different individual containers from mixing when said watertight and airtight caps are sealing said individual containers.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 9,199,767 B1
APPLICATION NO. : 14/621542
DATED : December 1, 2015
INVENTOR(S) : Hirshol H. Pheir

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the title page item (57) should read as follows:

A multi-compartment container structure has individual containers connected together. All the individual containers can have the same size and shape, and each has a flat base wall. Each of the individual containers is joined to immediately adjacent containers at wall edges of the flat base wall. The joints have a greater flexibility relative to the flat base wall. The flat base wall of each individual container lies in the same plane when the multi-compartment container structure is in an unrolled state. Each flat base wall of the individual containers lies in different parallel planes when the container structure is in a rolled-up state. The combination of flat base walls of the individual containers forms a multi-planar exterior of the container structure when the container structure is in the rolled-up state. The individual containers have watertight and airtight caps that are positioned adjacent each other when the container structure is in the rolled-up state.

Signed and Sealed this
Twenty-ninth Day of March, 2016

Michelle K. Lee

Michelle K. Lee
Director of the United States Patent and Trademark Office